California's Electricity Supply and Demand Balance Over the Next Five Years

The Energy Commission staff have evaluated the availability of electricity in the State for the next few years. The current assessment of electricity demand and supply looks promising through 2004.

The 2003 table summarizes staff projections of monthly generation capacity and demand for the coming year. The purpose of this outlook is to illustrate whether existing power supply and new capacity additions in progress will be sufficient to meet the State's demand needs given a reasonable set of conditions and assumptions. This analysis focuses on the adequacy of electricity generation capacity under moderate and adverse conditions that might strain the resources of the system.

The Commission's 2003 Baseline Demand forecast assumes the following assumptions in the assessment:

- One third (approximately 1300 megawatts) of the voluntary conservation seen during the 2001 electricity crisis will persist in 2003.

- Dry hydro conditions reflecting a 1-in-5 year condition give a conservative rating for power from the Pacific Northwest and instate hydro power facilities.

- Generation from thermal power plants are derated to reflect reduced operating conditions and dependable capacity during summer months.

- Imports available on the spot market assume dry hydro conditions based on recent historical levels.

- Only new power plants that staff estimate have a 75% or greater probability of coming on-line were included in generation estimates.

Some power plants within the South Coast Air Quality Management District (SCAQMD) will be retiring as a result of decisions not to upgrade emission controls. Owners of these plants have decided that it would not be cost effective to install selective catalytic reduction (SCR) equipment on these older plants as required by existing air quality rules. This outlook accounts for these expected retirements.

As indicated in the table, even under extremely hot conditions (1-in-10 year weather probability), and excluding spot market imports, the State should have a 9% operating reserve in 2003 during the critical months of July, August and September. When expected spot market purchases are included, operating reserves this number increase to 15% during the most critical months.

In a more normal, cooler one-in-two-year weather probability scenario the reserve margin increases to 16 percent, climbing to a 20 percent reserve margin with the addition of probable spot market purchases.

The 2004-2008 Statewide Annual Supply/Demand Balance provides a look-ahead comparison of Energy Commission staff's outlook of supply and demand for the summer peak for the years 2004 through 2008. The peak is assumed to occur in August.

Because this table looks further into the future, there is more uncertainty built into the estimated values. The 2004-2008 table also employs a reserve margin known as a planning reserve margin. Unlike an operating reserve, a planning reserve margin does not account for forced outages. It also does not include spot market purchases. The 2004-2008 table shows declining reserve margins due to the fact that the planning horizon for resource additions is usually only 2 to 3 years out. Most of the resource additions for this period remain uncertain.

California appears to be in good shape in the near term. Supply has outpaced demand in the Southwest and Northwest over the past two years by about 8,000 megawatts. Natural gas prices have declined from the high prices in 2000 through 2001and contracts signed in 2001 by the California Department of Water Resources have ensured that there will be sufficient capacity to meet loads. The Energy Commission staff will continue to reassess our supply-demand outlook so that we will have a better assessment of California's electricity system.

California Energy Commission

2003 California Electricity - Peak Demand Balance (MW) On The First Of The Month

		January	February	March	April	May	June	July	August	September	October
1	CEC 2003 Baseline Demand Forecast (1-in-2 Weather)[1, 2]	**38,207**	**36,854**	**36,567**	**37,877**	**41,777**	**47,216**	**52,150**	**52,150**	**52,150**	**42,863**
2	1-in-10 Weather Adjustment[1]					**1,430**	**2,734**	**3,020**	**3,020**	**3,020**	**1,467**
3	1-in-2 Operating Reserve (MORC)	**2,400**	**2,305**	**2,293**	**2,354**	**2,594**	**2,949**	**3,294**	**3,294**	**3,294**	**2,726**
4	1-in-10 Reserve Adjustment[1](MORC)					**100**	**191**	**211**	**211**	**211**	**103**
5	**California Statewide Peak Demand + Operating Reserve**	**40,607**	**39,159**	**38,860**	**40,230**	**45,901**	**53,091**	**58,675**	**58,675**	**58,675**	**47,159**
6	ISO Control Area Merchant Thermal	23,065	23,062	23,072	23,094	23,051	23,319	23,309	23,295	23,289	23,043
7	ISO Municipal Utility Thermal Resources	1,084	1,084	1,084	1,056	1,055	1,052	1,052	1,052	1,052	1,056
8	ISO Control Area Hydro (derated)	8,134	8,139	8,142	8,143	8,171	8,783	8,782	8,779	8,854	8,115
9	IOU Retained Generation	5,291	5,291	5,291	5,291	5,291	5,291	5,291	5,291	5,291	5,291
10	Net Imports ISO Control Area	3,924	3,924	3,814	4,253	4,724	5,095	5,095	5,095	5,095	3,920
11	QF Capacity (dependable)	5,714	5,744	5,794	5,917	5,923	5,623	5,597	5,573	5,535	5,754
12	LADWP Control Area Resources (hydro derated)	7,841	7,841	7,841	7,841	7,841	7,910	7,910	7,910	7,910	7,841
13	Imperial Irrigation District + Other Non ISO Municipals	992	992	994	991	980	988	1,005	1,005	1,005	985
14	SMUD Control Area Resources (hydro derated)	1,409	1,409	1,409	1,409	1,409	1,811	1,811	1,811	1,711	1,409
15	**Dependable Capacity**	**57,453**	**57,485**	**57,440**	**57,995**	**58,445**	**59,871**	**59,851**	**59,810**	**59,741**	**57,414**
16	Estimated Nuclear Refueling Outage	(1,435)	(1,435)	-	-	-	-	-	-	-	-
17	Economic Outages	(5,000)	(3,000)	(3,000)	(3,000)	(2,000)	-	-	-	-	(3,000)
18	Retirements due to plant owner's decision not to install SCR[3]	(1,234)	(1,234)	(1,234)	(1,234)	(1,234)	(1,234)	(1,234)	(1,234)	(1,234)	(1,576)
19	Estimated Forced and Planned Outages	(5,144)	(6,450)	(7,622)	(6,920)	(6,825)	(3,750)	(3,750)	(3,750)	(3,750)	(6,140)
20	**Estimated Forced & Scheduled Outages**	(12,813)	(12,119)	(11,856)	(11,154)	(10,059)	(4,984)	(4,984)	(4,984)	(4,984)	(10,716)
21	**Available Capacity**	**44,639**	**45,365**	**45,584**	**46,841**	**48,386**	**54,887**	**54,867**	**54,826**	**54,757**	**46,698**
22	**Resource Surplus/Deficit Before Additions[4]**	**4,032**	**6,206**	**6,725**	**6,611**	**2,485**	**1,797**	**(3,808)**	**(3,849)**	**(3,918)**	**(461)**
23	Generation Additions (dependable) @ 75% Probability	160	1,328	1,827	1,908	2,789	2,810	3,959	3,962	3,980	3,980
24	Sempra DWR Contract Obligation[5]	220	220	220			870	870	870	870	870
25	**Total Available Capacity**	**45,020**	**46,914**	**47,631**	**48,749**	**51,174**	**58,567**	**59,696**	**59,659**	**59,607**	**51,548**
26	**Resource Surplus/Deficit Before Spot Market[6]**	**4,413**	**7,754**	**8,772**	**8,519**	**5,274**	**5,477**	**1,021**	**983**	**932**	**4,389**
27	Expected Spot Market Imports[5]	2,700	2,700	2,700	3,200	3,200	2,700	2,700	2,700	2,700	2,700
28	**Resource Surplus/Deficit With Spot Market Imports[7]**	**7,113**	**10,454**	**11,472**	**11,719**	**8,474**	**8,177**	**3,721**	**3,683**	**3,632**	**7,089**
29	**Estimated Operating Reserve Margin (1-in-2 Weather)**	**20%**	**31%**	**34%**	**32%**	**25%**	**27%**	**16%**	**16%**	**16%**	**22%**
30	**High Temperature Reserve Margin (1-in-10 Weather)[1]**					**21%**	**19%**	**9%**	**9%**	**9%**	**18%**
31	**High Temp. Reserve Margin with Spot Market Imports[1]**					**32%**	**27%**	**15%**	**15%**	**15%**	**26%**
32	**Emergency Response Programs**										
33	Interruptible/Emergency Programs	913	913	913	913	913	1,100	1,100	1,100	1,100	913
34	Existing Voluntary/Emergency Programs	691	691	691	691	691	691	691	691	691	691
35	**Emergency Response Program Total**	**1,604**	**1,604**	**1,604**	**1,604**	**1,604**	**1,791**	**1,791**	**1,791**	**1,791**	**1,604**

[1] July-Sept are constant because peak could occur in any month; May and October are 1-in-5 scenarios.
[2] Forecasted peak demand has embedded within 1,300 MW of assumed voluntary conservation.
[3] Plant owners chose to retire capacity rather than add SCR; except for 77MW which are being retired due to loss of lease- see 2003 Generation Retirements table for details.
[4] Resource balance calculated by subtracting line 5 from line 21
[5] Sempra is obligated to provide an additional 870 MW capacity on peak that is likely to be met by its out-of-state-plants currently under construction.
[6] Resource balance calculated by subtracting line 5 from sum of lines 25 & 27
[7] Spot market estimate is conservative: assumes dry hydro year and is based on historical observations.

	DWR contracted capacity total by month (MW)	8,777	8,282	8,082	7,417	7,865	10,360	12,440	13,000	12,815	12,345

California Energy Commission

2003 California ISO Control Area Electricity - Peak Demand Balance (MW) On The First Of The Month

		January	February	March	April	May	June	July	August	September	October
1	CEC 2003 Baseline Demand Forecast (1-in-2 Weather)[1]	**31,528**	**30,411**	**30,174**	**31,255**	**34,473**	**38,962**	**43,033**	**43,033**	**43,033**	**35,369**
2	1-in-10 Weather Adjustment[1]					**1,132**	**2,280**	**2,519**	**2,519**	**2,519**	**1,161**
3	1-in-2 Operating Reserve (MORC)	**2,207**	**2,129**	**2,112**	**2,188**	**2,413**	**2,727**	**3,012**	**3,012**	**3,012**	**2,476**
4	1-in-10 Reserve Adjustment[1] (MORC)					**79**	**160**	**176**	**176**	**176**	**81**
5	**California ISO Control Area Demand + Operating Reserve**	**33,735**	**32,540**	**32,286**	**33,443**	**38,097**	**44,129**	**48,740**	**48,740**	**48,740**	**39,088**
6	ISO Control Area Merchant Thermal	23,065	23,062	23,072	23,094	23,051	23,319	23,309	23,295	23,289	23,043
7	ISO Municipal Utility Thermal Resources	1,084	1,084	1,084	1,056	1,055	1,052	1,052	1,052	1,052	1,056
8	ISO Control Area Hydro (derated)	8,134	8,139	8,142	8,143	8,171	8,783	8,782	8,779	8,854	8,115
9	IOU Retained Generation	5,291	5,291	5,291	5,291	5,291	5,291	5,291	5,291	5,291	5,291
10	Net Imports ISO Control Area	3,924	3,924	3,814	4,253	4,724	5,095	5,095	5,095	5,095	3,920
11	QF Capacity (dependable)	5,714	5,744	5,794	5,917	5,923	5,623	5,597	5,573	5,535	5,754
12	**Dependable Capacity**	**47,211**	**47,243**	**47,196**	**47,754**	**48,215**	**49,163**	**49,126**	**49,085**	**49,116**	**47,179**
13	Estimated Nuclear Refueling Outage	(1,570)	(1,570)	-	-	-	-	-	-	-	-
14	Economic Outages	(5,000)	(3,000)	(3,000)	(3,000)	(2,000)	-	-	-	-	(3,000)
15	Probable Retirements due to Air Quality Restrictions[2]	(1,180)	(1,180)	(1,180)	(1,180)	(1,180)	(1,180)	(1,180)	(1,180)	(1,180)	(1,522)
16	Estimated Forced and Planned Outages	(4,644)	(5,950)	(7,122)	(6,420)	(6,325)	(3,250)	(3,250)	(3,250)	(3,250)	(5,640)
17	**Estimated Forced & Scheduled Outages**	(12,394)	(11,700)	(11,302)	(10,600)	(9,505)	(4,430)	(4,430)	(4,430)	(4,430)	(10,162)
18	**Available Capacity**	**34,817**	**35,543**	**35,894**	**37,154**	**38,710**	**44,733**	**44,696**	**44,655**	**44,686**	**37,017**
19	**Resource Surplus/Deficit Before Additions[3]**	**1,083**	**3,003**	**3,608**	**3,711**	**613**	**604**	**(4,044)**	**(4,085)**	**(4,054)**	**(2,071)**
20	Generation Additions (dependable) @ 75% Probability	160	1,328	1,328	1,409	2,290	2,311	3,461	3,464	3,481	3,481
21	Sempra DWR Contract Obligation[4]	220	220	220			870	870	870	870	870
22	**Total Available Capacity**	**35,197**	**37,091**	**37,442**	**38,563**	**41,000**	**47,914**	**49,026**	**48,989**	**49,037**	**41,368**
23	**Resource Surplus/Deficit Before Spot Market[5]**	**1,463**	**4,551**	**5,156**	**5,120**	**2,903**	**3,785**	**286**	**248**	**297**	**2,280**
24	Expected Spot Market Imports[6]	2,200	2,200	2,200	2,700	2,700	2,200	2,200	2,200	2,200	2,200
25	**Resource Surplus/Deficit With Spot Market Imports[7]**	**3,663**	**6,751**	**7,356**	**7,820**	**5,603**	**5,985**	**2,486**	**2,448**	**2,497**	**4,480**
26	**Estimated Operating Reserve Margin (1-in-2 Weather)**	**13%**	**25%**	**28%**	**27%**	**22%**	**26%**	**16%**	**16%**	**16%**	**19%**
27	**High Temperature Reserve Margin (1-in-10 Weather)[1]**					**17%**	**18%**	**9%**	**8%**	**9%**	**15%**
28	**High Temp. Reserve Margin with Spot Market Imports[1]**					**29%**	**26%**	**15%**	**15%**	**15%**	**23%**
29	**Emergency Response Programs**										
30											
31	Interruptible/Emergency Programs	913	913	913	913	913	1,100	1,100	1,100	1,100	913
32	Existing Voluntary/Emergency Programs	691	691	691	691	691	691	691	691	691	691
33	**Emergency Response Program Total**	**1,604**	**1,604**	**1,604**	**1,604**	**1,604**	**1,791**	**1,791**	**1,791**	**1,791**	**1,604**

[1] July-Sept are constant because peak could occur in any month; May and October are 1-in-5 scenarios

[2] Announced probable shutdowns to comply with air quality rules; except for 77MW which are being retired due to loss of lease- see 2003 Generation Retirements table for details.

[3] Resource balance calculated by subtracting line 5 from line 18

[4] Sempra is obligated to provide an additional 870 MW capacity on peak that is likely met by its out-of-state-plants currently under construction.

[5] Resource balance calculated by subtracting line 5 from line 22

[6] Spot market estimate is conservative; assumes dry hydro year and is based on historical observations.

[7] Resource balance calculated by subtracting line 5 from sum of lines 22 & 24

	DWR contracted capacity total by month (MW)	8,777	8,282	8,082	7,417	7,865	10,360	12,440	13,000	12,815	12,345

California Energy Commission

2004-2008 Statewide Supply / Demand Balance (Planning Reserve)

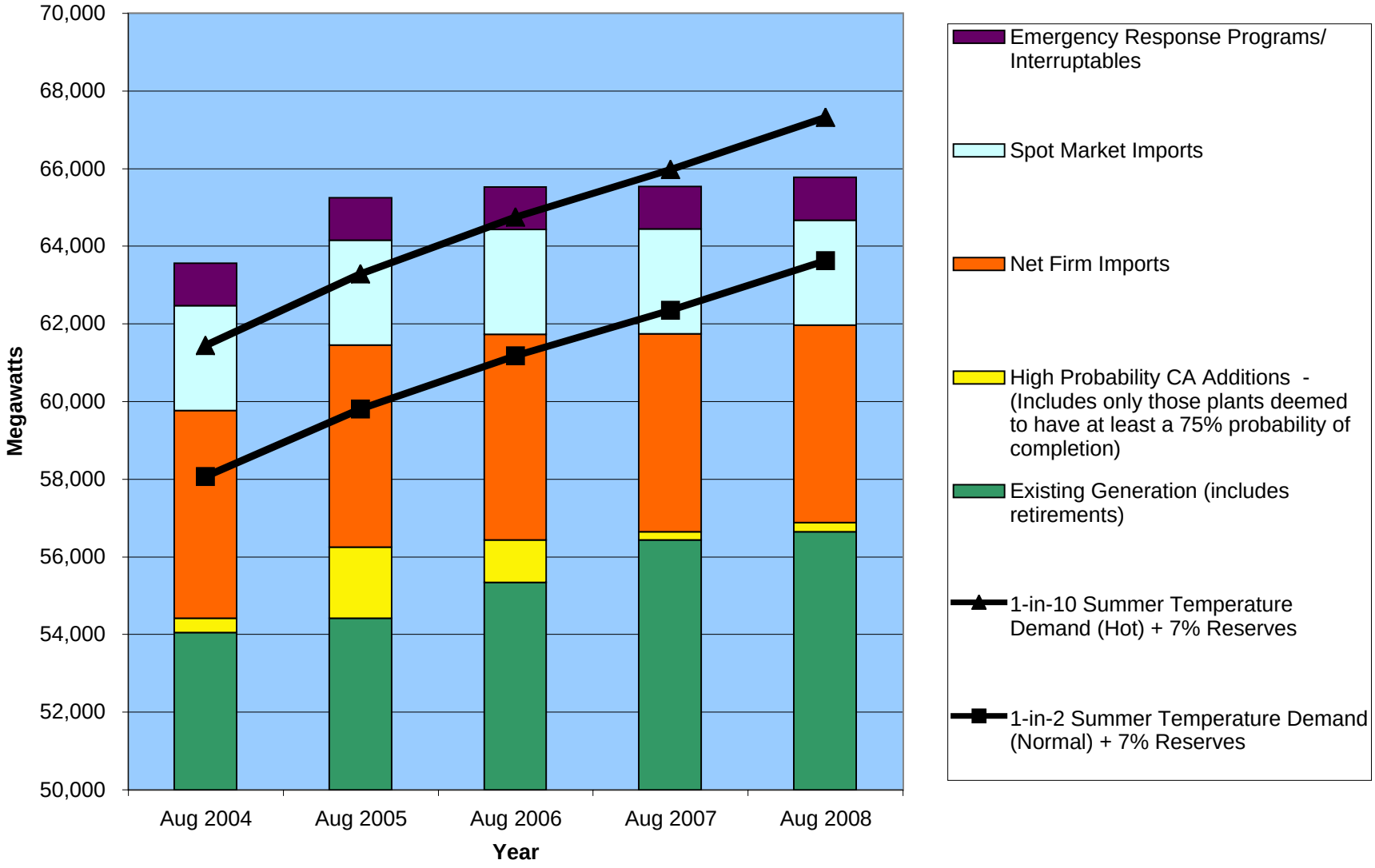
	Aug 2004	Aug 2005	Aug 2006	Aug 2007	Aug 2008
Existing Generation	54749	54416	56250	56424	56642
Retirements	-708	0	-916	0	0
High Probability CA Additions - (Includes only those plants deemed to have at least a 75% probability of completion)	375	1834	1090	218	229
Net Firm Imports	5345	5198	5298	5098	5098
Spot Market Imports	2700	2700	2700	2700	2700
Total Supply (MW)	**62,461**	**64,148**	**64,422**	**64,440**	**64,669**
Demand (revised Nov. '02): **1-in-2 Summer Temperature Demand (Normal)**	**54,261**	**55,885**	**57,175**	**58,267**	**59,459**
Planning Reserve Margin (1-in-2)	**15.1%**	**14.8%**	**12.7%**	**10.6%**	**8.8%**
Demand (revised Nov. '02): **1-in-10 Summer Temperature Demand (Hot)**	**57,416**	**59,137**	**60,502**	**61,654**	**62,914**
Planning Reserve Margin (1-in-10)	**9.3%**	**9.0%**	**6.9%**	**4.8%**	**3.0%**
Emergency Response Programs/ Interruptables	**1,100**	**1,100**	**1,100**	**1,100**	**1,100**
	54,041	54,416	55,334	56,424	56,642

Notes: Existing generation declines 82 MW between 2007 and 2008 because the Sempra contract obligation declines by 300 MW while 2007's resource additions only increase by 218.
Net firm imports estimate based on 2003 estimate. No new firm imports are assumed so contract expirations reduce net firm imports over time with exception of 2006 where 100MW export contract expires. This causes Net Firm Imports to increase 100MW in 2006.

Demand lines shown in the chart include 7% reserve. Demand values used to calculate planning reserves (above) do not include 7% reserve.

California Energy Commission

2004 -2008 Supply / Demand Balance



NEWS RELEASE

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CONTACT: Claudia Chandler • 916–654–4989

MEDIA & PUBLIC COMMUNICATIONS OFFICE

Energy Commission Predicts Promising Electricity Supply and Demand for Next Five Years

Sacramento — The California Energy Commission predicts that electricity demand and supply for the State looks promising this summer, and supplies should continue to remain positive through the year 2005.

According to testimony the Energy Commission presented today before the State Senate Energy Committee, California should have a nine percent operating reserve during the critical summer months of July, August and September, even without counting spot market imports that might be needed under extremely hot weather conditions. When the expected spot market purchases from outside the State are included in the forecast, operating reserves increase to 15 percent during the most critical months.

Steve Larson, the Energy Commission's Executive Director, told the committee that the situation could be even healthier if the weather cooperates. "In a more normal, cooler weather probability scenario," he said, "the reserve margin increases to 16 percent, climbing to a 20 percent reserve margin with the addition of probable spot market purchases."

Analysis by Energy Commission staff finds that California's power situation has improved since the Electricity Crisis of 2000. First, 18 new power plants have been licensed and constructed, adding over 4,980 megawatts to the grid. By August 2003, seven additional power plants generating 3,106 more megawatts will come online. Also, 25 renewable energy power plants — adding nearly 110 megawatts — have been funded through the Energy Commission's New Renewable Account, with an additional 12 megawatts coming on line before August, 2003.

Second, as a result of emergency energy legislation, energy efficiency projects are now in place to save electricity at critical peak-load times. These yield over 1,100 megawatts of savings from programs such as installing real time meters, implementing energy efficiency measures in State buildings, retrofitting equipment at waste water treatment facilities and installing LED traffic lights.

— more —

Third, California is not the only state constructing new power plants to meet growing electricity demand throughout the West. “Supply has outpaced demand in the Southwest and Northwest over the past two years by about 8,000 megawatts.” Larson told the Senate committee.

In addition to forecasting electricity supply and demand in 2003, the Energy Commission also looked at the electricity picture for the years 2004 to 2008. Because this projection looks farther into the future, there is more uncertainty built into its estimated values. The 2004-2008 projection also employs a planning reserve margin, which differs from an operating reserve by not accounting for forced outages or spot market purchases. Since power plant additions are usually planned two to four years before they need to come on line, resource additions for this period remain uncertain, the Commission’s 2004-2008 projection shows declining reserve margins.

Larson explained that California’s electricity system “appears to be in good shape through 2005, given the new generation from power plants both instate and in neighboring states and the ongoing energy efficiency programs.” Natural gas prices have declined from their high levels in 2000 through 2001 and electricity contracts signed in 2001 by the California Department of Water Resources have ensured that there will be sufficient capacity to meet load.

“To assure its energy future, however, California must to continue the energy efficient ways that makes us the most electricity efficient state in the nation. We can’t forget that the cheapest kilowatt is the one that we never use,” Larson said.

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The Energy Commission presentation to the Senate Energy Committee can be viewed on-line at

www.energy.ca.gov/electricity/